

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington D.C.**

In the Matter of)	
)	
IP-Enabled Services)	WC Docket No. 04-36
)	

INITIAL COMMENTS OF THE CITIZENS UTILITY BOARD

I. Introduction

The Federal Communications Commission (Commission) seeks comment on the impact that “IP-enabled services” (IP-ES) have had and will continue to have on the communications landscape of the United States. The determinations the Commission makes in this Notice of Proposed Rulemaking (NPR) will critically affect, and possibly determine, the future of telecommunications in the United States. In these comments the Citizens Utility Board (CUB) ¹ argues that one type of IP-ES, that we refer to as IP-POTS, is a telecommunications service as defined in Title II of the Telecommunications Act of 1996, and should be rationally regulated in order to comply with the public policy objectives underlying the Federal Telecommunications Act of 1996.

The Commission defines IP-ES as “services and applications making use of Internet Protocol (IP), including but not limited to voice over IP (VoIP) services”.² The

¹ The Citizens Utility Board was established by the Illinois General Assembly in 1983 to “promote the health, welfare and prosperity of all the citizens of this State by ensuring effective and democratic representation of utility consumers before the Illinois Commerce Commission the Federal Energy Regulatory Commission, the Federal Communications Commission , the courts and other public bodies...” Citizens Utility Board Act Illinois Revised Statutes, Ch. 111 2/3, Sec. 902.

² NPR at ¶ 1.

Commission acknowledges that “services” and “applications” are different: “Because both of these uses of IP are contributing to important transformations in the communications environment, this Notice seeks commentary on both, and uses the term ‘IP-enabled services’ to refer to ‘applications’ as well as ‘services.’”³ Recognizing the expansive scope of this definition the Commission invites comment on how to “rigorously distinguish those specific classes of IP-enabled services, if any, on which we should focus our attention.”⁴ Moreover, the Commission asks the broader question of “whether and how to differentiate between IP-enabled services and traditional voice legacy services.”⁵

In these Comments, CUB focuses on Voice over Internet Protocol (VoIP) service that is integrated into the public switched telephone network (PSTN). The Commission recognized VoIP in the NOPR as a distinct subset of the broader IP-enabled services. In terms of functionality, PSTN-integrated VoIP is indistinguishable from traditional voice legacy service or plain old telephone service (POTS). Therefore, in these comments, we refer to PSTN-integrated VoIP as Internet Protocol POTS or “IP-POTS.”

In addition, in these comments CUB proposes a rigorous methodology for classifying IP-POTS services. This methodology is based on an analysis of the functionality of the discrete, indivisible components of an IP-POTS. Then CUB elaborates on the type of regulatory treatment that should be accorded, under various Acts and Commission Orders, to IP-POTS. Most significantly, it’s important to understand the consequences of not regulating these services with respect to Universal

³ NOPR at ¶1.

⁴ *Id.*

⁵ *Id.* at ¶5.

Service, 911 and other important public policy initiatives that protect and provide assistance to consumers.

II. Legal Definitions

The Telecommunications Act of 1996 (the “Act”) distinguishes types of services based on two basic definitions. Title I of the Act applies to “information services” and Title II applies to “telecommunications services.”⁶ Information services remain essentially free of regulation, while Title II provides for regulation of traditional telephony in the form of wireline circuit-switched communication. Title II broadly requires that “all charges, practices, classifications and regulations for and in connection with such communication service, shall be just and reasonable, and any such charge, practice, classification, or regulation that is unjust or unreasonable is hereby declared to be unlawful.”⁷ Title II “telecommunications services” are subject to various types of regulation, including, for example, certain requirements and obligations to provide non-discriminatory service at just and reasonable rates, contribute to universal service funds, provide access to persons with disabilities, and includes prohibitions against slamming, to name a few.

The 1996 Act defines an “information service” as “the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications, and includes electronic publishing, but

⁶ 47 U.S.C. 151.

⁷ 47 U.S.C. 201 (b).

does not include any use of any capability for the management, control, or operation of the telecommunications system or the management of telecommunications service.”⁸

The 1996 Act defines “telecommunications” as “the transmission, between or among points specified by the user, of information of the user’s choosing, without change in the form or content of the information as sent or received.”⁹ A “telecommunications service” is “the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used.”¹⁰ In its 1998 Stevens Report to Congress, the Commission properly recognized that the type of protocol processing inherent in the particular communication delivery should not affect the Commission’s classification of the service as a telecommunications service if there is “no net protocol conversion to the end user.”¹¹

The threshold question for the Commission is how the various IP-enabled services will be defined. CUB’s application below of the statutory definitional requirements of Title II to VoIP voice communications services clearly demonstrates that they are a telecommunications service, and therefore should be regulated as such by the FCC and state regulatory agencies. IP-POTS is a voice communications service that meets the definitional requirements of a telecommunications service under Title II: 1) the service is a functional equivalent to POTS, 2) the service requires integration into the PSTN to provide complete service, and 3) the service is considered a substitutable

⁸ 47 U.S.C. § 153(20).

⁹ 47 U.S.C. § 153(43).

¹⁰ 47 U.S.C. § 153(46).

¹¹ *In the Matter of Federal-State Joint Board on Universal Service*, CC Docket 96-45, Report to Congress, 13 FCC Rcd 11501 (1998) at ¶ 52..

service to POTS. CUB argues that IP-POTS clearly meets the definition of a “telecommunications service” under Title II of the 1996 Telecommunications Act, and should therefore be subject to certain regulatory oversight, as elaborated below.

III. Technical Definitions

Functionally, Plain Old Telephone Service (POTS) has commonly been defined as real-time, voice grade, two-way (full duplex between each call participant) electronic telecommunications transmitted over the public switched telephone network (PSTN). While POTS does not denote cell phone service to many, the core of cell phone service clearly falls within the definition above. Thus, POTS, as we use the term in these comments, means voice service as defined above that originates and/or terminates on wireline or wireless phones.

We define VoIP, functionally, as real-time, voice grade, two-way (full duplex between each call participant) electronic telecommunications transmitted wholly or in part over IP networks. While there are technical differences between different VoIP services for the end user there are two types of VoIP. One type is VoIP that allows consumers to contact other members of a private network. Often referred to as “computer-to-computer” telephony, this service has existed and continues to flourish via the Internet through VoIP providers such as Free World Dialup and Skype. This form of VoIP generally uses e-mail names or a private numbering scheme for addressing. The second type allows users to call to, and receive calls from any caller with a POTS or IP-POTS phone number.

CUB, in these comments, defines phone or telephone to be any device, regardless of the technology that at a minimum converts a human voice into an

electronic signal and transmits it to another phone while simultaneously receiving a signal from the other phone and converting the received signal into sound.

IV. Background

A number of service providers offer computer-to-computer, or peer-to-peer, VoIP without any bells and whistles. Others are, or will be, offering bundled packages that include VoIP and other IP-ES. For example, a number of vendors are planning to offer enterprise scale products that bundle VoIP with other services and applications such as instant messaging, video conferencing, resource management tools, “presence”, etc. Another offers consumer products that have VoIP as the core with other telephony related enhanced services and messaging services included in the package, and advertises itself as “the broadband phone company”. VoIP is still in its infancy and it already has a wider range of products coming to the market than traditional telephony developed in a hundred and twenty-five years.

In fact, a distinguishing characteristic of the internet is its open programming interface that allows application developers to create a myriad of products and services from a basic set of building blocks. All of the examples above are instances of this new service creation paradigm. In the NOPR the Commission sums up the difference between the PSTN and the internet as follows:

Whereas the PSTN’s design is logically and physically hierarchical, utilizing highly centralized signaling intelligence to connect parties to a communication, IP network design is ‘flat,’ distributing network intelligence and permitting highly dynamic and flexible routing that takes into account network delays, changes in loads, and changes in topology. And whereas enhanced functionalities delivered via the PSTN typically must be created internally by the network operator and are often tied to a physical termination point, IP-enabled

services can be created by users or third parties, providing innumerable opportunities for innovative offerings competing with one another over multiple platforms and accessible wherever the user might have access to the IP network.¹²

Given a telecommunications landscape with a plethora of seemingly different telecommunication products and packages of service, as is emerging, the COMMISSION, in the NOPR has laid down a dual challenge to those who believe that regulation, however moderate in scope, is necessary. “To the extent – if any – that application of a particular regulatory requirement is needed to further critical national policy goals, that requirement must be tailored as narrowly as possible, to ensure that it does not draw into its reach more services than necessary.”¹³

CUB will elaborate, in these comments, a methodology for determining what constitutes IP-POTS that allows for a fine-tuning of regulatory requirements. Additionally, CUB will summarize the new regulatory framework for VoIP enacted by other national agencies and select states. Finally, CUB will discuss the potential negative consequences if the FCC fails to require IP-POTS service providers and their customers to accept the same social obligations that existing telecom service providers and their customers bear.

V. Methodology

CUB assumes that regulation is a prerequisite for achieving universal service and other critical national policy goals. In response to the FCC’s request for a methodology

¹² NOPR at ¶ 4.

¹³ *Id.* at ¶ 35.

it can apply to any IP-ES product to determine if it should be regulated or not, CUB has developed the following simple test:

If an IP-ES 1) is offered to consumers as, or is recognizable as, a functional equivalent of POTS; and 2) is integrated into the PSTN such that calls can be connected through to end users on POTS lines or calls can be received from end users on POTS lines; and 3) is substitutable for POTS, it would qualify as regulated service. To the extent that an IP-ES is a bundled product or package of services any component, option, or feature of the IP-ES whether it be a stand alone or integrated component, at the core or on the periphery that meets the three criteria above would qualify as a regulated service.

Functional Equivalence

The Commission asks “what tests might we employ to identify” functional equivalence¹⁴, if it is an appropriate basis, as CUB believes it is, on which to evaluate IP-ES. In CUB’s view, the test of functional equivalence for telephone service requires that three conditions be met or exceeded: 1) the same result must be obtained from each technology given the equivalent input; 2) the technologies operate in the same domain; and 3) they have the same functional range.

If you define POTS as instantaneous, simultaneous communications, as the Commission has or as CUB has above, it is clear that IP-POTS meets the three conditions that constitute functional equivalence. IP-POTS provides instantaneous and

¹⁴ NOPR at ¶ 37.

simultaneous communications. IP-POTS operates in the same domain, i.e. the PSTN, it has the same functional range in that anyone with a phone connected to the PSTN can be called, and anyone using IP-POTS can be called by anyone else with a phone, as defined above.

Substitutability

Another important requirement to Title II is substitutability. There is no doubt that voice service delivered via VoIP can replace POTS service - consumers are already doing exactly that. Voice services delivered over VoIP and integrated with PSTN, have the same capabilities and are perceived to be a substitute for traditional public telephone by the consumer. VoIP phone such as provided by Vonage and many cable companies, are designed and marketed to look, feel and sound like POTS services. They offer similar calling plans and features and even allow the consumer to use the same phone that they use for POTS. Some cable companies even install battery backup packs at the consumer's home so that they have phone service if their power goes out, just like POTS service. Though some companies have advertised this service as a second line service, many do not and encourage consumers to transfer their existing phone number(s) to the VoIP- enabled service. IP-POTS service can provide every convenience that POTS can and in the consumer's mind is a true alternative to POTS.

PSTN Interconnection

Interconnection to the PSTN is a key characteristic, in CUB's opinion, that separates VoIP services and other IP-ES into two categories. Those that do not interconnect with the PSTN, like Skype and Free World Dialup (FWD) or online games and messaging services, do not operate in the POTS domain. Because FWD does not interconnect, it does not utilize PSTN resources; therefore, CUB agrees with the Commission's decision to exempt FWD from Title II regulation.

Interconnection to the PSTN is a key characteristic because PSTN-integrated VoIP, or IP-POTS as we called it, has a parasitical relationship with the PSTN: IP-POTS places burdens on the PSTN that are left uncompensated. The IP to PSTN connection allows the IP-POTS user to capture PSTN resources without having to pay the same interconnection rates and other fees that the user would pay if the call were a POTS call. Similarly, calls to IP-POTS users in some instances allow the calling party to escape toll and long distance rates for the call.

Summary

Consistent with Title II, IP-POTS services have the following characteristics:

- They utilize resources of the PSTN.
- They access the Service Control Point (SCP) databases like Local Number Portability (LNP) of the PSTN to set up calls.
- They route calls over transmission facilities of Local Exchange Carriers.
- They allow for calls originating in the PSTN to be routed through to their customers.

- They provide Caller Id (by accessing the CNUM database via SS7 signaling) and all the other PSTN custom calling features (such as three-way calling, call forwarding, etc.)
- In some cases customers of these VoIP providers can even port their wireline phone number when switching to VoIP service.

CUB believes that any IP-enabled service, regardless of technology, that is offered and recognizable to consumers as a functional equivalent of POTS, is integrated into the PSTN, and is substitutable for POTS should be subject to the same rights and obligations of currently regulated telecommunications carriers. In other words, an IP-ES that functions like POTS (*i.e.* real-time, duplex, voice grade telecommunication), interconnects with the PSTN, can connect to any other device connected to the Internet, and is substitutable for POTS, is a Title II telecommunications service and should be regulated as such.

VI. Comparative regulatory frameworks for IP services

State regulatory perspectives

The state regulatory commissions of Minnesota and New York have recently found that VoIP is a telecommunications services and subject to regulation, and California is considering doing the same. Their findings and decisions merit serious consideration by the Commission in this proceeding.

In February 2004, the California Public Utilities Commission (CPUC) released an order instituting an investigation into the appropriate regulatory framework for VoIP¹⁵. While a final ruling has yet to be issued the CPUC has adopted a functional approach that views VoIP from an end user's perspective. The CPUC noted the following findings regarding VoIP:

"In offering ubiquitous real-time, point-to-point voice service, VoIP competes with traditional providers of voice telephony, including ILECs, and cable telephony providers.

Incumbent local exchange carriers and cable operators have also deployed, or have announced plans to deploy, VoIP on a commercial basis to business and/or residential customers in the next few years.

VoIP delivers voice and other related services using IP technology. Voice using IP is a substitute for voice using traditional digital protocols, such as TDM.

Many VoIP transmissions interconnect with the PSTN and utilize telephone numbers.

VoIP requires a customer to have a high-speed connection to the Internet."¹⁶

Of particular concern to the California Commission is a staff analysis that demonstrates a total projected impact on state USF between \$183 and \$407 million by 2008. Based on these findings the CPUC tentatively concludes that "...VoIP that is interconnected with the Public Switched Network qualifies as a public utility telecommunications service."¹⁷

¹⁵ *Order instituting investigation on the Commission's own motion to determine the extent to which the public utility telephone service known as Voice over Internet Protocol should be exempted from regulatory requirements.* .California Public Utilities Commission, Docket No. 04-02-007 ALJ/PSW/k47, Issued: February 11, 2004.

¹⁶ *Id.* at p. 8

¹⁷ What is VOIP?, *California Public Utilities Commission*, November, 2003

In response to complaints by incumbent local exchange companies regarding the VoIP services offered by Vonage Holdings Corporation (Vonage), the state regulatory bodies of Minnesota and New York have ruled that Vonage is a telecommunications service and subject to applicable regulation.

The Minnesota Public Utilities Commission (MNPUC) found that Vonage offers unlimited local and long distance calling as well as typical custom calling features, holds itself out as providing all-inclusive home phone service, and advertises itself as a substitute for a customer's current telephone company¹⁸. The Vonage service uses a conventional phone plugged into a router at the customer's premise and connects via a broadband connection to the internet. The MNPUC found that, "Although the phone is plugged into an MTA router which, in turn, is plugged into the modem, the consumer is being provided with service that is functionally the same as any other telephone service. Further, the Vonage service intersects with the public switched telephone network."¹⁹ Therefore MN PUC decided that "(w)hat Vonage is offering is two-way communication that is functionally no different than any other telephone service...and is clearly subject to regulation by the Commission." The MNPUC has appealed the order of the United States District Court for the District of Minnesota permanently enjoining the MNPUC from subjecting Vonage to regulation as a telephone company.²⁰

¹⁸ *In the Matter of the Complaint of the Minnesota Department of Commerce Against Vonage Holding Corp Regarding Lack of Authority to Operate in Minnesota*, Minnesota Public Utilities Commission, Docket No.. P-6214/C-03-108, Issued: September 11, 2003 Docket No. P-6214/C-03-108.

¹⁹ *Id.* at p.8.

²⁰ *Vonage Holdings Corp. vs. Minnesota Pub. Util.S. Comm'n*, 290 F.Supp. 2d 993, 996 (D. Minn. 2003).

More recently, the New York State Public Service Commission (NYSPSC) ruled that Vonage which offers competitive telecommunications service through VoIP technology is a telephone corporation and should be subject to regulation similar to that applied to comparable competitive carriers²¹. In its decision, the NYSPSC sought to “maximize the benefits of emerging VoIP technology, while minimizing the risks to the public interest, including safety and economic interests”.²²

According to a statement by Chairman William M. Flynn,

After seeking public comments, the Commission determined that Vonage owns and manages equipment that is used to provide telephone service to Vonage's customers and to connect Vonage's customers to the customers of other telephone corporations via their public networks and thus, like other owners of telecommunications-provisioning equipment, is subject to the NYS Public Service Law. Further, the Commission found that Vonage is reselling to its customers telecommunications capabilities it acquires from other, third-party telephone corporations. Resellers have previously been found to be under the jurisdiction of the Commission.

Of particular interest to the Commission in this case is balancing the need to ensure the reliability of Vonage's VoIP-enabled service in providing access to effective 911/E911 emergency calling capabilities and the economic interests of advancing telecommunications services in the state. While the Commission does not guarantee the financial success of any one provider of competitive telecommunications services, it should not create unfair regulatory advantages for some providers over others.²³

²¹ *Complaint of Frontier Telephone of Rochester, Inc. Against Vonage Holdings Corp. Concerning Provision of Local Exchange and Interexchange Telephone Service in New York State in Violation of the Public Service Law*, New York Public Service Commission, Case 03C1285, Issued: September 10, 2003. Decision May 19, 2004.

²² PSC: Vonage is a Telephone Corporation as Defined by NYS Law – Commission Seeks to Maximize Benefits of New Technology, Protect Core Public Interests, Press Release, State of New York, Public Service Commission, May 19, 2004.

²³ *Id.* at p. 2

Subsequent to issuing its written decision, the NYSPSC will allow Vonage 45 days in which to seek waivers of any regulations it considers inappropriate or with which it determines it is not able to comply.

International perspectives

As the Commission has observed, we now have a “truly global network” which transcends jurisdictional boundaries. Consequently, the Commission’s decisions concerning an appropriate regulatory framework for VoIP networks and services will affect the rapidly evolving market for voice communications services, which transcends both domestic and international geographic boundaries. For that reason, the Commission should consider recent decisions by comparable decision-making bodies of the European Union, the United Kingdom and Canada concerning new regulatory frameworks for voice communications services using Internet Protocol in making its decision in this proceeding.

Each national agency recognized that the convergence of telecommunications and Internet-based networks and services required a new coherent regulatory framework in order to promote economic and social public policy objectives more effectively and efficiently. Their common policy objectives, similar to those of the Commission, include consumer protection, public safety, universal service, and the exercise of regulatory forbearance where appropriate in order to foster competitive developments in the marketplace.

The key underlying principles that these agencies have relied on to develop new regulatory frameworks are that regulation should be the minimum required to meet clear policy objectives; should enhance regulatory certainty in a dynamic market; and

importantly, that regulation should be technologically neutral. Technological neutrality ensures that voice communications services are similarly regulated without reference to how the services are delivered.

European Union

The European Union's (EU) "New Electronic Communications Regulatory Framework" (Regulatory Framework) issued in 2002 applies to all electronic communication services and networks, and is intended to harmonize communication regulation throughout the European Union.²⁴ This new regulatory framework is based on a horizontal approach to regulation rather than the traditional vertical one. The new regulatory framework relies on the principle of technological neutrality and eliminates the EU's previous regulatory distinction between switched or packet based networks and or services. The EU now considers VoIP service as another voice service subject to the same regulatory rules as any other voice service even though it is based on a different technology. Under the new regulatory regime, all voice providers, including VoIP providers, have equal rights and duties regarding authorization, interconnection, access, numbering, directory entries, emergency calls and contributions to the funding of universal service. The new regulatory framework includes the following Directives:

²⁴ New Electronic Communications Regulatory Framework European Union, July 2002, http://europa.eu.int/information_society

Framework Directive which provides the overall structure sets forth the policy objectives and regulatory principles that National Regulatory Authorities must follow, and requires that market analyses be done prior to imposing regulation.

Authorization Directive which allows providers to offer VoIP and other electronic communications services without prior notice or permission of the regulator. It also sets forth the minimum obligations for providers such as interconnection, numbering, directory entries, emergency calls and contributions to the funding of universal service.

Access Directive which prescribes the terms under which providers may access the networks and services of others in order to provide publicly available electronic communications services terms. Access obligations generally are imposed only on providers with significant market power. Others such as VoIP providers can negotiate the terms of access with other operators.

Universal Service Directive which sets forth the obligation to provide certain basic services to customers including voice telephony, fax and voice band data transmission via modem.

United Kingdom

Ofcom, the regulatory body for the United Kingdom, implemented a new regulatory framework for the regulation of electronic communications in July 2003²⁵.

The new regulatory regime is based on the European Union's Directives and adopts its technology-neutral approach to the regulation of communications services and networks including VoIP. Ofcom has determined that because VoIP services are electronic communications services as defined in the British Communications Act 2003, they will be regulated as publicly available telephone services if the following conditions apply:

- the service is marketed as a substitute for the traditional public telephone service, or
- the service appears to the customer to be a substitute for the traditional public telephone service over which they would expect to access emergency numbers, directory enquiries etc without difficulty; or;
- the service provides the customer's sole means of access to the traditional circuit switched public telephone network.

Canada

More recently, the Canadian Radio-Television and Telecommunications Commission (CRTC) in its Telecom Public Notice of April 7, 2004²⁶ expressed its preliminary views that its current regulatory framework should apply to VoIP services.

²⁵ *New Regulatory Framework for the Regulation of Electronic Communications*, Ofcom, July 2003. <http://www.ofcom.org.uk>

²⁶ *Regulatory framework for voice communication services using Internet Protocol*, Telecom Public Notice CRTC, April 2004; <http://www.crtc.gc.ca/archive/ENG/Notices/2004/pt2004-2.htm>

The CRTC considers that voice communication services using Internet Protocol (IP) that use telephone numbers based on the North American Numbering Plan (NANP), and provide universal access to and/or from the Public Switched Telephone Network (PSTN) have functional characteristics that are the same as circuit-switched voice telecommunications services. The Commission also stated that “to the extent that VoIP services provide subscribers with access to and/or from the PSTN along with the ability to make and/or received calls that originate and terminate within the geographic boundaries of a local calling areas as defined in the Incumbent Local Exchange Carriers’ (ILECs) tariffs, they should be treated for regulatory purposes as local exchange services, and be subject to the regulatory framework governing local competition”.

In the Public Notice, the CRTC stated that, in its preliminary view, VoIP are “functionally the same as those of circuit-switched voice telecommunications services”, and that the principle of technological neutrality applies, and that “VoIP services should be subject to the existing regulatory framework, including the Commission’s forbearance determinations”.

Summary

In their recent decisions, the regulatory bodies of California, Minnesota and New York have considered the same economic and social policy issues that the Commission is addressing in this proceeding, and determined that VoIP is a telecommunications service and should be regulated albeit in a limited way. It behooves the Commission then to give serious weight to these state decisions in its own deliberations about VoIP.

Given the international implications of the Commission's decisions concerning the regulation of IP-enabled services, the alternative approaches to regulation by the European Union and Ofcom as well as the preliminary views of the Canadian Radio-Television and Telecommunications Commission are also instructive. They can provide guidance to the Commission in establishing its regulatory regime for IP-enabled services in a global communications world where VoIP services potentially could become the primary means of voice communications service of the future.

VII. Potential consequences of failure to properly regulate IP-POTS services

It is important to understand the negative consequences of not regulating VoIP service with respect to its effect on important social and economic public policy objectives such as Universal Service, 911 and other important initiatives that protect and provide assistance to consumers. Therefore, CUB advocates that the Commission mandate state and federal regulation of all fee-based IP-POTS services. As telecommunications services providers, these IP-POTS service providers should be subject to rational regulation that supports the public policy goals of the 1996 Telecommunications Act, which includes, but is not limited to requirements to be certificated at the state and federal level and to meet all the Quality of Service (QoS) requirements and Consumer Protection Standards (CPS) of Plain Old Telephone Service.

Development of the VoIP voice communications market

The disruptive force of VoIP is no longer a fantasy. Market launches involving IP Telephony over cable networks estimate between 20% and 30% market penetration within three years. IP-POTS providers such as Vonage are claiming 20,000 new customer additions per month²⁷. IDC, an industry consultancy firm, estimates that the worldwide VoIP services market will grow to \$16.5 billion by the end of this year²⁸. In the business market, research firm Gartner estimates that 15% of all phones sold to companies use VoIP technology today with the market growing to 50% by 2006. Nemertes Research recently surveyed 42 large companies and found that 62% now use IP telephony with 19% more running trials²⁹. A survey conducted for the California PUC forecasts VoIP residential penetration at between 40% and 43% of households by 2008³⁰.

Many advocates for minimal or no regulation of VoIP rave about the plethora of new and exciting applications the technology offers in an attempt to distinguish VoIP as a novel and new technology. However, consumers recognize that the foremost current appeal of VoIP is a net reduction in voice communications service pricing. Flat rate plans for unlimited local and long distance calling are offered at \$30 per month³¹. Similar pricing on regulated traditional wireline service is typically offered at \$50 per

²⁷ Vonage CFO John S. Rego to Keynote the Wall Street Reporter Telecom Investment Forum, Vonage Corporation Press Release, May 25, 2004;
http://www.vonage.com/corporate/press_index.php?PR=2004_05_25_0

²⁸ *VoIP in a Dynamic Communications Market*, Joe Crupi, Converge Network Digest, May 17, 2004; <http://www.convergedigest.com/blueprint/tp04/z3ti1.asp?ID=117&ctgy=2>

²⁹ *VoIP by the numbers*, Robin Gareiss Network World, November 3, 2003;
<http://www.nwfusion.com/cgi-bin/mailto/x.cgi>.

³⁰ *What is VOIP?*, Presentation to the California Public Utilities Commission, November, 2003.

³¹ <http://www.vonage.com/>

month³². VoIP providers can offer this level of pricing (and maintain a profit), in part, because they are not subject to the standard access charges and regulatory fees of POTS providers. In a level and fair competitive market, participants should not be permitted such regulatory arbitrage. The principle of competitive neutrality that has guided recent telecom policy should be brought to bear on any instance of discriminatory environment that favors one economic interest at the expense of others.

Digital divide crisis

The boon for VoIP users is unfortunately a potential bust for many other stakeholders. The economic impact of the shift to VoIP will be felt with great urgency over the next few years. It is not difficult to see the results of VoIP trends and adoption rates. If, for instance, in an unregulated regime, 40% of consumers become VoIP customers, that leaves the remainder of customers with the burden of supporting the network infrastructure. Presumably POTS fees will have to increase accordingly. The consequent disproportionate economic value will of course drive even more consumers toward VoIP. The upward trajectory of migration will approach an extreme limit in which the only remaining users of traditional networks will be those without alternative access. This remaining unfortunate few will be left with the entire burden of system support without a radical change in how that system is paid for and managed.

The scenario is one in which the often discussed digital divide is driven to crisis levels. Two main constituencies are particularly vulnerable: rural markets and low-income communities. While recent growth in broadband access has been dramatic, the

³² http://www.theneighborhood.com/res_local_service/

economics behind business cases for deploying affordable broadband facilities have resulted in many underserved and unserved communities. To take the example of DSL, a recent study by Tangent Business Solutions³³ discovered that even in a major competitive market like Chicago, 10% of consumers are unable to receive DSL service. But more significantly, when individual communities are examined, the lack of access to DSL can range up to 50% of residents and businesses. In cases where the communities affected have incomes below the poverty level, it is impossible to justify infrastructure investment without economic incentives and policy support.

A similar division between technology haves and have-nots occurs in rural markets. For example, a recent report surveying access by county in North Carolina shows that rural counties lag their urban counterparts in broadband penetration by more than 10% (54% for urban counties vs. 43% for rural counties)³⁴. The lack of access is compounded further when income demographics are looked at concurrently with geographic data. The same North Carolina study found the poorest rural counties with as little as 10% of the population receiving broadband access.

Regardless of the technology involved – DSL, cable modems or broadband wireless – service providers have difficulty overcoming the cost-benefit realities of serving low income and rural communities. These discrepancies can only be addressed with additional financial support to improve the infrastructure and/or the capability of the

³³ *Access to redevelopment: An analysis of supply and demand for high-speed data services in Chicago's neighborhoods*, Metropolitan Planning Council, February 2004; http://www.metroplanning.org/cmadoocs/broadband_pgs1_12.pdf

³⁴ *Rural Internet Access Authority*, 2003 Annual Report, Rural Internet Access Authority, December 2003.

technology. That support has historically been rooted in policies represented by universal service and mechanisms such as intercarrier access compensation.

Thus, despite the potential financial advantage unregulated VoIP offers some consumers, the consequences of delayed or ineffectual regulatory treatment of VoIP could prove to be devastating for competitive neutrality, longstanding public social policy objectives and, in effect, the sustainability of the telecommunications network as a whole.

Access Fees

CUB believes that it is in the public interest that IP-POTS service providers should pay access fees to carriers that their customers interconnect with. A failure by the Commission to require IP-POTS service providers to compensate other carriers they interconnect with will, over time and as the use of VoIP grows, place an unfair burden on traditional carriers and the consumers that they serve.

The magnitude of the threat to the current access system is enormous and has substantial short-term and long-term cash flow consequences for the respective parties. Especially vulnerable are the high cost rural markets, where for small rural carriers, access charges represent 30 to 50 percent of intrastate revenues. Access charges typically represent 30 percent of revenues for large telephone companies, which are used to offset a portion of the cost of basic telephone services offered by those companies. Without changes to the current access regime, experts believe that sharp increases in VoIP growth could result in a cascading effect in which consumers flee traditional POTS providers, thereby driving up rates for basic services for remaining

consumers, which in turn leads to further migration from the regulated networks. The result is even steeper price increases to existing services and the reduction of funds to maintain and upgrade networks.

On a related issue, CUB is concerned that the Commission's recent ruling that AT&T's phone-to-phone IP telephony services are not exempt from access charges³⁵ may create unintended long-term consequences for VoIP services and intercarrier compensation. The ruling notes that one defining characteristic of AT&T's service is its use of ordinary customer premises equipment (CPE).³⁶ While providing some clarification, this precedent implies that a service that does not use conventional CPE may somehow be exempt from access charges. The evolving forms of CPE using VoIP technology may or may not resemble a traditional dial-tone phone. However, as we have tried to demonstrate, the primary functionality of the voice call does not change based on the type of device employed. We maintain that the current SIP (Session Initiation Protocol) enabled device used for some IP telephony is evolutionary with respect to CPE design. To narrowly restrict access fee obligations to services employing traditional CPE technology is as arbitrary as saying that when cordless phones entered the marketplace somehow the underlying service was functionally altered.

³⁵ *In the Matter of Petition for Declaratory Ruling that AT&T's Phone-to-Phone IP Telephony Services are Exempt from Access Charges*, WC Docket No. 02-361, Order (released April 21, 2004) ("AT&T Order").

³⁶ *Id.* at ¶11.

USF shortfall and disruption of state and local funding programs

Customers of IP-POTS service providers should pay into the Universal Service Fund (USF) for the same reason that POTS customers pay. All consumers benefit from having as high a proportion of the population connected to the PSTN as is only possible with subsidies for high cost areas. To make telephone service available and affordable to all citizens, federal programs have been put into place to support Universal Service.

Numerous state, county and municipal programs are dependent on revenues derived from regulated telecommunications services. Services for the deaf and disabled, support for schools, community based organizations and libraries, and contributions to low income households are at risk.³⁷ IP-POTS providers should be subject to all state and federal laws and taxes applicable to telecommunications services providers.

Moreover, many individual states collect, or are contemplating collection of, state USF fees to supplement federal support. Consistent with federal definition, states have defined universal service as the availability of telephone service at reasonable rates to all citizens. In addition to key minimum elements such as single party lines, voice grade quality, access to emergency, operator, long distance and directory services, many states have responded to constituent needs by including Telecommunications Relay Services (TRS) for the hearing impaired, modem capable lines, privacy protection and access to custom features in their definition of “basic service.” Many unique programs have been developed from state-funded USF. Lifeline services for low-income groups,

³⁷ See Appendix to this opinion for details on specific state funding programs.

infrastructure upgrades for hospitals and schools, distance learning and telemedicine initiatives, advanced telecommunications facilities and access to the Internet are all policies and programs that enrich the lives of citizens and economically develop communities. These programs have been made possible via USF contributions. State USF fees are tied to the recognition of revenues associated with telecommunications service providers. The migration of consumers to IP-POTS providers, which, if unregulated, would not contribute to the USFis, is a potential threat to these revenues.

Rural LECs face a critical dilemma. Federal USF support has been instrumental in reducing the price of services in high-cost areas. Migration of customers to VoIP services in an unregulated environment means declining aggregate contributions and fewer funds available to preserve rural infrastructure. Recent proposals have suggested that USF funds be limited to support only “primary” customer lines. The consequent decline in support coupled with more stringent restrictions in Universal Service application could place the policy of affordable rural service in jeopardy.

911 service issues

CUB believes that IP-POTS service should be E911 compliant and that the consumers of these services should pay their fair share of the costs of the E911 system. Without regulatory oversight, the public good associated with 911/E911 is threatened. To date, many IP-POTS providers have addressed the problem by establishing a customer opt-in and self-reporting approach to 911 service registration and tracking. The recent determination by the New York PSC that Vonage is a telecommunications service provider subject to its jurisdiction makes special note of the Commission’s

concern that IP-POTS providers are not properly interconnected with that state's emergency response network and are therefore providing ineffective and unlawful 911 services.

Allowing VoIP service providers and consumers, to opt-in or opt out of 911/E911 access will seriously undermine the fundamental purpose of the emergency response system. As consumers replace their POTS service with VoIP based service, the lack of regulation will create holes in the 911/E911 coverage causing the serious potential of life and property loss. 911/E911 cannot be an opt-in, voluntary service when IP-POTS service is the primary communication channel for any consumer. Ubiquitous access to emergency response services is far too critical to leave to the vagaries of the marketplace and decisions by unregulated IP-POTS providers.

CALEA compliance

IP-POTS service providers should comply with the requirements of the Communications Assistance for Law Enforcement Act (CALEA)³⁸. Providers not conforming to CALEA requirements can hinder legal surveillance operations and potentially jeopardize important criminal investigations. Under CALEA, telecommunication providers are required to modify the design of their equipment, facilities, and services to ensure that lawfully authorized electronic surveillance can be performed. Specifically, the act requires that the provider: 1) have the equipment and means in place to isolate and intercept subscriber communications; 2) provide all reasonably available information about the transmission of the call, excluding actual

³⁸ Communications Assistance for Law Enforcement Act of 1994 www.askcalea.com/calea.html

location information; 3) deliver all information to law enforcement in a format that can be transmitted to a government agency location; and 4) provide these intercepts without interfering or interrupting the subscriber's services.³⁹ The act also requires that the provider have the capacity to execute a certain number of intercepts based on the location of the equipment.⁴⁰

If IP-POTS voice services are not classified as telecommunication services, law enforcement agencies may encounter difficulties in performing legal surveillance operations. IP-POTS providers may lack the capability to perform the functions that would otherwise be required of them. This circumstance could negatively impact the duty of law enforcement agencies to protect the public.

By classifying IP-POTS voice services as telecommunication services, the Commission will bolster its ability to mandate that these providers conform to the requirements in CALEA. This in turn will aid all law enforcement agencies in their pursuit of legal surveillance ensuring the safety of the general public.

NANP resource concerns

Unregulated IP-POTS service providers are in a unique position to violate the rules the North American Numbering Plan (NANP). Many of these providers allow customers to obtain, for a monthly fee, a phone number from a remote area code that is forwarded to one of their main numbers, so that long distance calls from the remote area code will be billed as local calls. Business customers, through the use of remote

³⁹ 47 U.S.C. 229

⁴⁰ *Id.*

area codes, take advantage of the service to boost their image by giving the perception that they have offices in prime geographic or multi-city locations. But this activity will increase demand on an already strained number system and further burden this Commission and state commissions as these agencies try to deal with the shortage of local numbers for consumers and businesses that are actually located within their jurisdiction.

The shortages will cause an additional burden on the companies that are in these areas as they incur the extra cost associated with a change in their area code. It will also exacerbate the problems consumers encounter when area codes are either changed or added as overlays on existing area codes. Unless there is a dramatic change in the North American Numbering Plan, the Commission should review this practice and determine if it conforms to current Commission rules and policy.

Competitive choice

It is a given that the low barriers to entry, efficient cost structure and high ratio of potential applications make IP-POTS and associated IP-enabled services a model of competitive communications. Industry advocates point to the innovation and value that VoIP products have so far delivered to consumers. Their conclusion is that regulation will stifle growth and suffocate invention. What has less frequently been discussed is the potential consequences for the continued success of IP telephony in an *unregulated* environment.

Following the economic logic outlined in these Comments, it is possible to conceive a not-too-distant future in which legacy networks are functionally altered by the

lack of regulation of VoIP. The cascade effect of significant migration to cheaper unregulated services will force current network owners to become simply providers of broadband access to consumers. Two likely scenarios for business survival thus emerge for existing facilities based network providers: 1) become providers of pure broadband connectivity and raise prices on that service to maintain the infrastructure and achieve profitability, or 2) quickly leap into the VoIP space with their own competitive offerings to provide a bundle of connectivity and services. With the announced plans of all major RBOCs and Cable MSOs to launch their own VoIP services, it is clear that the incumbents have chosen the second scenario.

The concern with this scenario is that incumbent providers possess the advantages of network control and superior market power over their end users. In an unregulated environment there is no historical or economic reason for these providers to either ensure the open access to their facilities or pass on cost efficiencies to consumers. This in return reduces the number of competitors in all markets and leaves consumers with fewer choices.

VIII. Conclusion

CUB strongly recommends that the Commission and state regulatory agencies regulate IP-POTS voice communications services. The regulation of these services will allow for continued innovation, foster a level playing field for all service providers, and support important social and economic policies. IP-POTS is simply an evolution in the technology of the transport mechanism that delivers voice services. The primary service is still voice communications, and that does not change due simply to a change in a portion of the delivery mechanism. In terms of innovation, VOIP is analogous to the

conversion from analog voice switching to digital switching -- the fact that voice transmissions were digitized did not change the service classification from a telecommunication service to an information service. The Commission is now confronted with a similar situation. Title II classification should apply to VoIP voice communications services, because these services meet the statutory definitional requirements: they are functionally equivalent, recognized by consumers as a substitute for POTS, and integrated with the PSTN. IP-POTS should therefore be rationally regulated in order to comply with the public policy objectives underlying the Federal Telecommunications Act of 1996.

Appendix 1: State telecommunications funding programs

The following table identifies current state funding programs tied to telecommunications services. An array of funding mechanisms support high cost infrastructure development and maintenance, low income service subsidies, infrastructure improvement for schools, libraries and hospitals, services for the disabled and deaf as well as initiatives to spur technological growth and promote economic development via telecommunications⁴¹.

State	Targeted Groups	Contributors	Basis for Contribution	Types of Subsidies	Who Draws From Fund
Alaska	Telecommunications Relay Service	LECs, BOC, IXC	Access charge per line	Rate subsidy	LECs with eligible subscribers
Arizona	Universal Service, Rural/high cost	LECs, BOC, IXC	Surcharges per access line and per minute of use on intrastate toll	Rate subsidy	LECs who demonstrate high cost (one LEC now)
Arkansas	Universal Service, Rural/high cost	LECs, BOC, wireless, IXC	% of retail billed minutes of use	Rate subsidy	LECs with intrastate NTS costs per loop > 115% of statewide weighted average

⁴¹ Data compiled by Tangent Business Solutions

State	Targeted Groups	Contributors	Basis for Contribution	Types of Subsidies	Who Draws From Fund
California	Low income/economically disadvantaged, High Cost Service, Lifeline Assistance, Telecommunications Relay Service, Teleconnect Service	LECs, BOC, wireless, IXC	% of billable revenues	Carrier rate subsidy; Subsidy to customer	LECs with high cost and eligible subscribers
Colorado	High Cost Support Mechanism, Low-Income Telephone Assistance, Telecommunications Relay Service	LECs, BOC, IXC	Minutes of use and access charge per line	Rate subsidy	Costs above average investment for the traffic
Connecticut	Low income/economically disadvantaged, Enhanced 911 Telecommunications	LECs, BOC, IXC	Total gross revenues as a percent of total state revenues. Access lines.	Rate subsidy with subsidy going to customer	LECs with eligible subscribers Subscriber receives credits for intra and interstate service
Florida	Telecommunications Relay Service	LECs, BOC, IXC	Access charge per line	Rate subsidy	LECs with eligible subscribers
Georgia	Universal Service, Telecommunications Relay Service	LECs, BOC, IXC	Access lines, % of billable revenues	Rate subsidy	LECs with high cost and eligible subscribers

State	Targeted Groups	Contributors	Basis for Contribution	Types of Subsidies	Who Draws From Fund
Idaho	Universal Service, Telecommunications Relay Service, Telecommunications Assistance Program	LECs, BOC, IXC's	Surcharge on all local access lines and each intrastate toll minute	Bulk check to carrier	LECs with rate for 1-party single line in excess of 125% of weighted statewide avg.; or avg. charge per minute for NTS/WTS in excess of statewide avg.
Illinois	Lifeline, Link-up and Universal Telephone Assistance Programs	Customer contributions, and IXC's	Customer voluntary, and LEC intrastate minutes of use for high cost program	Waiver of installation charge to customer; Sliding scale subsidy to carrier for costs above statewide average	LECs based on the number of eligible PA customers; Small LECs based on average costs per access line versus statewide average
Indiana	Rural/high cost	LECs, BOC, wireless, IXC's	Intrastate carrier common originating and terminating access minutes	Rate subsidy; Direct infrastructure reimbursement; waiver of hook-up charge.	LECs with intrastate NTS costs above the statewide average
Kansas	Universal Service	LECs, BOC, IXC's	Access charge per line	Rate subsidy	LECs with high cost and eligible subscribers
Kentucky	Universal Service, Telecommunications Relay Service	LECs, BOC, wireless, IXC's	Access charge per line	Rate subsidy	LECs with high cost and eligible subscribers
Louisiana	Level of Service Preservation	All telecommunication providers	Access charge per line	Rate subsidy	LECs with eligible subscribers

State	Targeted Groups	Contributors	Basis for Contribution	Types of Subsidies	Who Draws From Fund
Maine	Universal Service	LECs, BOC, IXC's	% of billable revenues	Rate subsidy	LECs with high cost and eligible subscribers
Massachusetts	E911/Disabilities Access	All telecommunication providers	Access charge per line	Rate subsidy	LECs with eligible subscribers
Michigan	Lifeline Assistance, Dual Party Relay Service	All telecommunication providers	Access charge per line	Rate subsidy	LECs with eligible subscribers
Mississippi	Dual Party Relay Service, E911 Service	BOC, LECs	Minutes of use	Rate subsidy; Direct infrastructure reimbursement	13 LECs with high-cost
Missouri	Telecommunications Relay Service	All telecommunication providers	Revenues	Rate subsidy	LECs with eligible subscribers
Nebraska	Universal Service, Lifeline/Link -Up Service, E911 Service, Dual Party Relay Service	LECs, BOC, IXC's	% of billable revenues	Rate subsidy	LECs with high cost and eligible subscribers
Nevada	Rural/high cost, Assistance to Persons with Impaired Speech or Hearing	All telecommunication providers	Access lines, % of intrastate retail revenues	Rate subsidy; Direct infrastructure reimbursement	Small LECs with rate of return below commission set level
New Mexico	Universal Service, Low income/economically disadvantaged Rural/high cost	All telecommunication providers	Total revenues	Rate subsidy	No one is drawing from fund

State	Targeted Groups	Contributors	Basis for Contribution	Types of Subsidies	Who Draws From Fund
North Carolina	Universal Service, Dual Party Relay Service	All telecommunication providers	Revenues, access lines	Rate subsidy	LECs with eligible subscribers
Oklahoma	Universal Service, High Cost Service, Telecommunications Relay Service	All telecommunication providers	% of intrastate retail revenues	Rate subsidy	LECs with high cost and eligible subscribers
Oregon	Universal Service, Low income/economically disadvantaged	LECs, BOC, IXC	% of gross revenues	Rate subsidy; Direct infra-structure reimbursement	LECs who show cost shift would cause residential rates to exceed \$15.00
Pennsylvania	Universal Service, Lifeline tracking, Telecommunications Relay Service	LECs, BOC, IXC	% of gross revenues	Rate subsidy	LECs with high cost and eligible subscribers
Rhode Island	Schools/Economically disadvantaged	LECs, BOC, IXC	% of gross revenues	Rate subsidy	LECs with high cost and eligible subscribers
South Carolina	Universal Service	LECs, BOC, IXC	% of billable revenues	Rate subsidy	LECs with high cost and eligible subscribers
Tennessee	Small & minority business telecommunications assistance	LECs, BOC, IXC	% of billable revenues	Rate subsidy	LECs with high cost and eligible subscribers
Texas	Universal Service, Telecommunications Infrastructure, Low income/economically disadvantaged Users with disability	LECs, BOC, IXC	Revenues, access minutes of use	Rate subsidy to carrier; Equipment reimbursement; Customer rate reduction	LECs with high cost who show cause or those with eligible customers

State	Targeted Groups	Contributors	Basis for Contribution	Types of Subsidies	Who Draws From Fund
Utah	Universal Service	All telecommunication providers	Access charge per line	Rate subsidy	LECs with eligible subscribers
Utah	Rural/high cost	LECs, BOC, wireless, IXC's	1/2 cent/minute NTS traffic	Direct infrastructure reimbursement, Cost of service subsidy	LECs (not BOC) whose rates equal or exceed a target rate set by the UPSC
Vermont	Universal Service, Assistance to Persons with Impaired Speech or Hearing, Low income/economically disadvantaged Emergency services (911)	LECs, BOC, wireless, resellers	2% surcharge on all bills including interstate, cellular, directory assistance, 2-way cable, PCN service	Rate subsidy; Direct infrastructure reimbursement	Reimbursement to providers of TRS service; Rate subsidy to eligible customers; Direct infrastructure reimbursement to carrier for 911 upgrades
Virginia	Telecommunications Relay Service	All telecommunication providers	Access charge per line	Rate subsidy	LECs with eligible subscribers
Washington	Rural/high cost	LECs, BOC, IXC's	Carriers proportion of total access minutes	Rate subsidy to eligible carriers	LECs whose unsupported loop costs is 115% of statewide avg.
West Virginia	Telecommunications Relay Service	All telecommunication providers	Access charge per line	Rate subsidy	LECs with eligible subscribers

State	Targeted Groups	Contributors	Basis for Contribution	Types of Subsidies	Who Draws From Fund
Wisconsin	Rural/high cost Low income/economically disadvantaged Users with disability, Homeless Advanced services to schools & health care	All providers of telecomm services with rev > \$200K	% of gross revenues	Rate subsidy, Direct infrastructure reimbursement; Equipment reimbursement	LECs for eligible subscribers (low income and disabled); High rate assistance based on median income in service area
Wyoming	Universal Service	LECs, BOC, IXC's, wireless	% of gross retail revenues	Rate subsidy to carrier with credit on bill	LECs with rates above 135% of statewide average